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ISSCR: Committee Forum

Konrad Hochedlinger: ISSCR Outstanding Young Investigator for 2009

The inaugural ISSCR Outstanding Young Investigator Award was awarded to Konrad Hochedlinger in recognition of exceptional achievements in the early part of his independent stem cell research career.

The International Society for Stem Cell Research (ISSCR) has selected Konrad Hochedlinger as the recipient of its 2009 Outstanding Young Investigator Award. The award, supported by the University of Pittsburgh, was instigated this year to highlight the achievements of an exceptional early-career scientist. In the words of Fred H. Gage, Professor and Vi and John Adler Chair for Research on Age-Related Neurodegenerative Diseases at the Salk Institute and Chair of the ISSCR Awards Committee, "The ISSCR developed the Young Investigator Award to recognize and encourage the new generations of scientists committed to stem cell biology. The remarkable list of nominees this year attests to the fact that the field is strong and vibrant. Konrad is a terrific example of the quality of young scientist attracted to the expanding opportunities in this field." We could not agree more on all points.

Konrad Hochedlinger is an Assistant Professor in Harvard's Department of Stem Cell and Regenerative Biology and a Principal Faculty member of the Harvard Stem Cell Institute. He is a Principal Investigator in the Massachusetts General Hospital (MGH) Center for Regenerative Medicine where he maintains his laboratory and in the MGH Cancer Center. Konrad completed his graduate training with one of us (R.J.) at the Whitehead Institute for Biomedical Research, although his Doctoral degree was awarded by the Research Institute of Molecular Pathology, University of Vienna in the spring of 2003. Konrad, soon after joining the laboratory, demonstrated his remarkable scientific ability in an exceptionally elegant experiment. After the publication of Dolly (Wilmut et al., 1997), one of the major unresolved questions of the mammalian cloning field had been whether clones could be derived from the nucleus of a terminally differentiated cell as assumed in the original experiment rather than from nuclei of somatic stem cells present in the heterogeneous donor cell population. Konrad's initial PhD work resolved this question leading to a truly landmark publication; he used nuclear transfer (NT) to demonstrate that terminally differentiated murine B and T lymphocytes could be cloned via a clever two-step protocol to generate monoclonal mice (Hochedlinger and Jaenisch, 2002). This work was accomplished almost simultaneously with another project that demonstrated the first proof of principle that NT in combination with gene and cell therapy could be used to improve the disease phenotype in a mouse model of congenital immunodeficiency (Rideout et al., 2002). This was followed by another ingenious use of NT to demonstrate that even malignant melanoma cells were capable of being reprogrammed to developmental pluripotency and that chimeric mice generated with the resulting NT-ESCs remained cancer prone (Hochedlinger et al., 2004).

After a brief postdoctoral experience at the Whitehead, Konrad started his own laboratory at Harvard and MGH in 2006. In the few short years since then, the pace of his research in cellular reprogramming has only accelerated. Konrad's laboratory has made major contributions to the reprogramming literature, building upon the original observations of Shinya Yamanaka to generate induced pluripotent stem cells (iPSCs) that showed in vitro virally delivered, gene-based reprogramming of somatic cells (Takahashi and Yamanaka, 2006). Konrad's laboratory demonstrated improved performance of fully reprogrammed human iPSCs and creatively exploited conditional transgene expression cassettes to define the temporal events of reprogramming; his group has investigated the epigenetic modifications that accompany reprogramming and was the first to demonstrate the generation of transgene-free iPSCs via adenoviral gene transfer (Maherali et al., 2008; Maherali et al., 2007; Stadtfeld et al., 2008a; Stadtfeld et al., 2008b). Konrad's laboratory contributed to the production of the first large repository of patient-specific iPSCs (Park et al., 2008).

Finally, to all of us who have worked closely with Konrad, we feel privileged to have such a warm and generous colleague in our midst. We anticipate more spectacular scientific contributions in the years ahead, and offer our most heartfelt congratulations on his recognition with the 2009 ISSCR Outstanding Young Investigator Award. It is most deserved.

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